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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference EMBR-017	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/BR 03/00097	International filing date (<i>day/month/year</i>) 15.07.2003	Priority date (<i>day/month/year</i>) 16.07.2002
International Patent Classification (IPC) or both national classification and IPC F25B9/14		
Applicant EMPRESA BRASILEIRA COMPRESSORES S/A EMBRACO et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 10.02.2004	Date of completion of this report 22.10.2004
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Szilagyi, B Telephone No. +49 89 2399-7157



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No.

PCT/BR 03/00097

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-15 as originally filed

Claims, Numbers

1-12 as originally filed

Drawings, Sheets

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-10
	No: Claims	1,11
Inventive step (IS)	Yes: Claims	5,7-10
	No: Claims	2-4,6
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations

see separate sheet

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Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

- D1: US-B1-6347524
- D2: US-A-5477687
- D3: EP-A-0210337
- D4: EP-A-0351163

2. The present application does not meet the requirements of Article 33 PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document) a refrigeration system (1) comprising:

- a Stirling machine (10) having a heating portion (28) and a refrigerating portion (26);
- a refrigerating chamber (cf. figs. 2 and 5);
- a first thermal energy transfer device (142-150) operatively associated with the refrigerating portion (26) and with the refrigerating chamber, so as to transfer heat from the latter to the refrigerating portion by means of a circulating fluid;
- a second thermal energy transfer device (64), operatively associated with a heat receiving means, external to said machine, and with the heating portion thereof, so as to transfer heat from the heating portion to the heat receiving means by means of a circulating fluid,

wherein the first thermal energy transfer device (142-150) comprises at least one capillary pump (196-206) mounted in the refrigerating chamber in order to evaporate, by the heat absorbed from the latter and by action of the pressure loss generated by the fluid passing through the capillary pump, the circulating fluid received in said capillary pump;

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- a condenser (131) operatively coupled to the refrigerating portion of the Stirling machine, in order to condense the circulating fluid received, in the gaseous state, from the first thermal energy transfer device (142-150)
- and pipes (196-206) to conduct, in a closed loop, the circulating fluid, in the liquid state, from the condenser (131) to the first thermal energy transfer device) and, in the gaseous state, from the latter to the condenser (cf. column 13, lines 45-55).

3. The supplementary features introduced by dependent claims 2, 3 and 11 are also known from documents D2-D4 and do not add anything of inventive significance to the subject-matter of claim 1. The features of claims 4 and 6 are a matter of normal design procedure. As a consequence, claims 2-4, 6 and 11 are not allowable under Article 33(3) EPC for lack of inventive step of their subject-matter.
4. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.